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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,635	09/16/2003	Syamal K. Ghosh	86291RLO	1910

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EXAMINER	
WOLLSCHLAGER, JEFFREY MICHAEL	
ART UNIT	PAPER NUMBER
1732	

DATE MAILED: 01/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/663,635	GHOSH ET AL.	
	Examiner	Art Unit	
	Jeff Wollschlager	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 October 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date .
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments, see REMARKS, filed October 13, 2005, with respect to claims 9 and 10 being indefinite for lack of antecedent basis have been fully considered but they are not persuasive. The rejection of claim 10 stands. The rejection of claim 9 has been withdrawn. Claim 10 states "the controlled atmosphere." This claim lacks antecedent basis since it depends from claim 7 not claim 9.

Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Shi (U.S. Patent Application Publication 2004/0016907; filed July 21, 2003).

The applied reference has a common Assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Shi teaches a method for forming a homogeneous mixture of powders of organic material including at least one dopant component and one host component to provide a homogeneous mixture for forming a pellet for thermal physical vapor deposition producing an organic layer on a substrate for use in an organic light-emitting device comprising a) combining organic materials, such materials including at least one dopant component and one host component, b) providing a solvent with the organic materials to form a suspension of organic materials in the solvent, c) mixing the suspension at a temperature sufficient to form a solution of the organic materials in the solvent; and d) evaporating the solvent from the solution leaving a homogeneous mixture of the organic powder. A suspension is defined as "a mixture in which particles are dispersed throughout a fluid" (Compact Oxford English Dictionary). Thus, when Shi forms a homogeneous mixture of a host and dopant in a solvent a suspension is formed. (page 4, paragraph 0041).

Regarding claim 5, Shi teaches the organic materials being added to the solvent (page 4, paragraph 0041).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi (U.S. Patent Application Publication 2004/0016907; filed July 21, 2003) in view of Van Slyke et al. (U.S. Patent 6,797,314; issued September 28, 2004; filed July 3, 2001).

Regarding claim 2, Shi teaches the method of claim 1, but does not teach compacting the homogeneous mixture of organic powders to form a pellet. Van Slyke et al. teach compacting a homogeneous mixture of organic powder to form a pellet suitable for thermal physical vapor deposition to produce an organic layer on a substrate for use in an organic light-emitting device (col. 18 lines 6-12), meeting the limitations of claim 2. Therefore, it would have been obvious to one of ordinary skill in

the art at the time of the claimed invention to modify the method of Shi for forming the homogeneous mixture of claim 1, with the method of Van Slyke to form a pellet suitable for thermal physical vapor deposition to produce an organic layer on a substrate for use in an organic light-emitting device from the homogeneous mixture with a reasonable expectation of success. The motivation to do so is provided by Van Slyke who describes the various problems observed using powders for thermal physical vapor deposition to produce an organic layer on a substrate for use in an organic light-emitting device (col. 2 lines 16-59). Thus, the claimed invention as a whole was *prima facie* obvious over the combined teachings of the prior art.

Claim 3 is directed toward the amount of dopant component in the mixture formed by the method of claim 1. Shi teaches the method of claim 1, but does not teach the range of dopant that may be used. The claimed range is 0.1 – 20% by weight. Van Slyke et al. teach that any range of dopant material may be selected (col. 17 lines 41-43). This is read to be from 0 – 100%.

Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi (U.S. Patent Application Publication 2004/0016907; filed July 21, 2003) in view of Nguyen (U.S. Patent 5,821,019; issued October 13, 1998). Shi teaches the method of claim 1, but does not teach the use of tetrahydrofuran or dichloromethane as the solvent(s). Nguyen teaches the use of solvents to improve the efficiency of mixing. He specifically cites tetrahydrofuran and dichloromethane as conventional organic solvents known in the art (col. 10 line 53 – col. 11. line 1), meeting the limitations of claims 4 and 6. Therefore, it would have been obvious to one of ordinary skill in the art at the time of

the claimed invention to take the method of Shi for forming the homogeneous mixture of claim 1, while specifically using tetrahydrofuran and/or dichloromethane as the solvent. The motivation to do so is provided by Shi to ensure effective mixing of the material. Thus, the claimed invention as a whole was *prima facie* obvious over the combined teachings of the prior art.

Claims 7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi (U.S. Patent Application Publication 2004/0016907; filed July 21, 2003) in view of Valint, Jr. et al. (U.S. Patent 6,902,812; issued June 7, 2005; filed May 6, 2003). Shi teaches the method of claim 1, but does not provide any detail on the evaporative method to remove the solvent from the mixture. Valint, Jr. et al. teach a basic procedure for removing solvent via evaporation. Valint, Jr. et al teach using a temperature of at least 50 °C (col. 18, line 5), meeting the limitations of claim 7, while conducting the evaporation of the solvent under vacuum (col. 17 line 64), meeting the limitations of claim 9, and under an inert gas (col. 18 line 7), meeting the limitations of claim 10. Valint, Jr. et al also teach that utilizing various time, temperature, and pressure conditions for solvent removal are well known (col. 17 line 67 – col. 18 line 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to take the method of Shi for forming the homogeneous mixture of claim 1, while using the evaporative process taught by Valint, Jr. et al. The motivation to do so is provided by Shi to ensure sufficient removal of the solvent from the homogeneous mixture. Thus, the claimed invention as a whole was *prima facie* obvious over the combined teachings of the prior art.

Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi (U.S. Patent Application Publication 2004/0016907; filed July 21, 2003) in view of Tsubota et al. (U.S. Patent 4,178,182; issued December 11, 1979). Claims 8 and 12 are directed towards ultrasonic mixing with an ultrasonic horn operating in the range of 10 – 30 kHz. Shi teaches the method of claim 1, but does not teach ultrasonic mixing with an ultrasonic horn in the range of 10 – 30 kHz. Tsubota et al. teach mixing a solution using an ultrasonic horn at 29 kHz (col. 25 lines 13-19), meeting the limitations of claims 8 and 12. Therefore it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to take the method of Shi et al. as discussed above and to further modify it by using an ultrasonic horn operating at 29 kHz with a reasonable expectation of success. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F. 2d 1575 16 USPQ2d 1934 (Fed. Cir. 1990). Thus, the claimed invention as a whole was *prima facie* obvious over the combined teachings of the prior art.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi (U.S. Patent Application Publication 2004/0016907; filed July 21, 2003) in view of Van Slyke et al. (U.S. Patent 6,797,314; issued September 28, 2004; filed July 3, 2001) and further in view of Okuyama et al. (U.S. Patent 6,835,681; issued December 28, 2004; filed December 19, 2001). Regarding claim 11, Shi in view of Van Slyke teach the method of claim 2, but neither Shi nor Van Slyke teach compacting the mixture in a range of pressures between 3,000 – 20,000 pounds per square inch. Okuyama et al.

teach (col. 4 lines 53-54) compacting the mixture in a preferable range of 50 – 200 MPa (approximately 7250 – 29,000 pounds per square inch). In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F. 2d 1575 16 USPQ2d 1934 (Fed. Cir. 1990). Thus, the claimed invention as a whole was *prima facie* obvious over the combined teachings of the prior art.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Friday 7:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JW

Jeff Wollschlager
Examiner
Art Unit 1732

January 10, 2006

MICHAEL P. COLAIANNI
SUPERVISORY PATENT EXAMINER